

## THE LIFE HISTORY OF *HYPOCHRYSOPS ELGNERI* BARNARDI WATERHOUSE (LEPIDOPTERA: LYCAENIDAE)

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### Abstract

The immature stages of *Hypochrysops elgneri barnardi* Waterhouse are described. They are attended by the ant *Philidris cordatus stewartii* (Forel). *Nauclea orientalis* (Rubiaceae), *Planchonia careya* (Lecythidaceae) and mistletoes *Notothixos* sp. (Viscaceae) and *Dendrophthoe glabrescens* (Loranthaceae) are recorded as larval food plants.

### Introduction

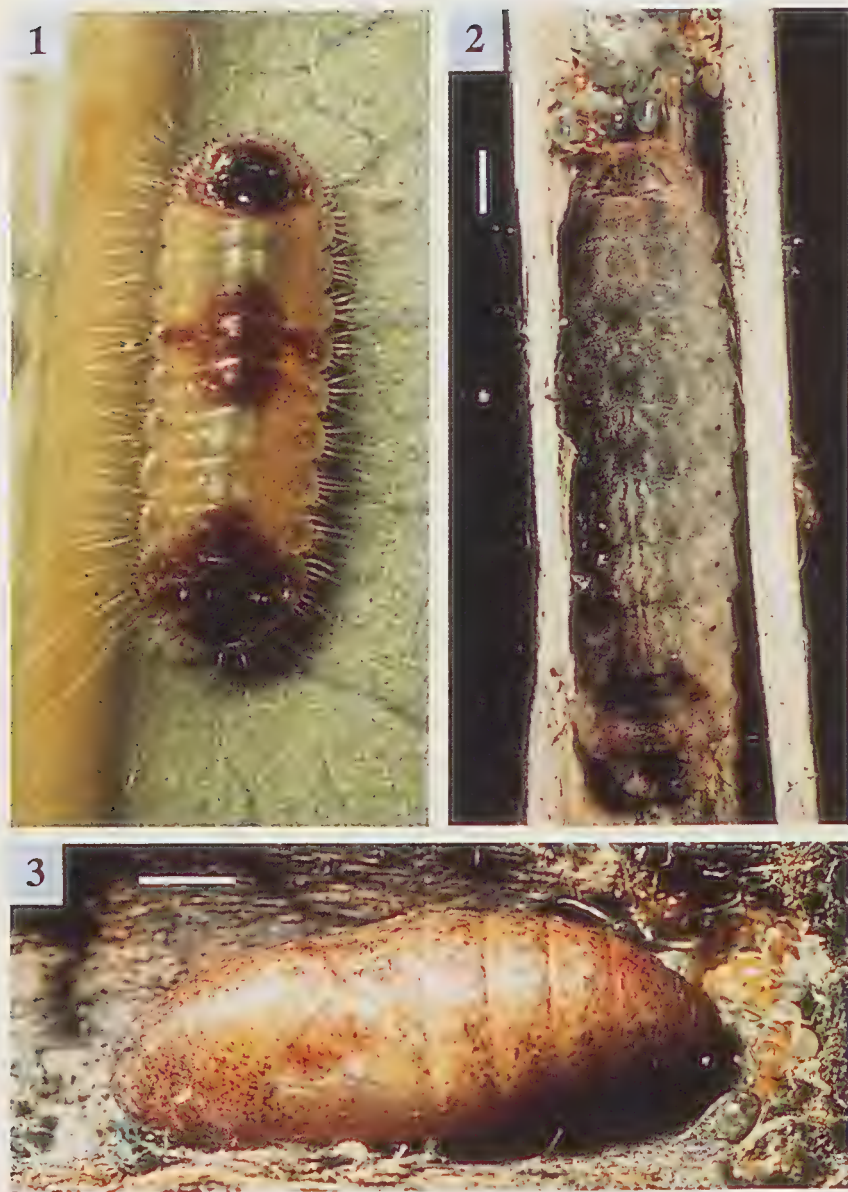
*Hypochrysops elgneri* (Waterhouse and Lyell) is known from Papua New Guinea, Torres Strait Islands and Prince of Wales Island (subsp. *elgneri*) and Cape York to the McIlwraith Range, northern Queensland (subsp. *barnardi*) (Common and Waterhouse 1981; Sands 1986). Its life history has not been recorded previously. Here we describe the immature stages of *H. elgneri barnardi* (Fig. 4), collected at the Claudie River (Iron Range), Cape York Peninsula.

### Immature Stages

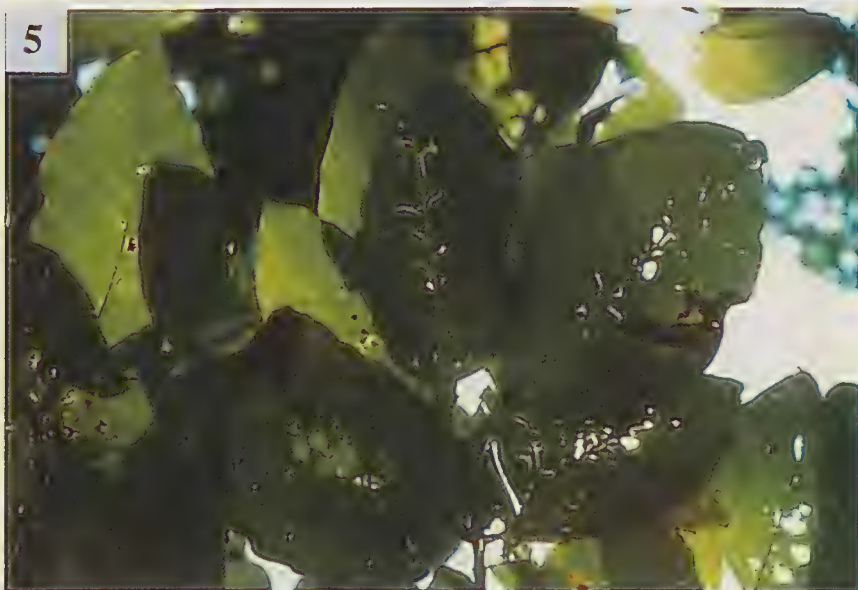
**Egg.** Mandarin-shaped, with coarse network of fine oblique ridges forming more or less diamond-shaped pits, with spines at their intersection. Diameter 0.8 mm (2 hatched eggs).

**Early instar (not first)** (Fig. 1). Flattened, with white marginal hairs, very long at anterior and posterior end, long middorsal hairs on segments 1-6, and numerous secondary setae; body yellowish-green with three reddish patches covering prothorax, segment 5 and middorsal areas of segments 4 and 6, and middorsal area of segment 9 and all of anal segments, and with a reddish lateral spot on each of segments 2-4 and 6-9; prothoracic and anal plates shining black; head brown. Newcomer's organ and tentacular organs present.

**Final instar** (Fig. 2). Flattened with scalloped margins and white marginal hairs; secondary setae dense, pale to black, stellate with central process; body pale grey laterally, merging to pinkish-brown dorsally, with obscure cream undulating longitudinal lines, more defined subdorsally on segments 2-3 and middorsally and subdorsally on segments 7-9; prothoracic plate diamond-shaped, pale brown with dark brown setae laterally and in a broad median band; anal plate broader posteriorly, grey with black setae, a black V-shaped marking anteriorly and two black lateral spots; spiracles black; head brown. Newcomer's organ and tentacular organs in hollow between rear of segment 9 and ridge in front of anal plate; tentacular organs directly behind and adjacent to posterior spiracles.



**Figs 1-3.** *Hypochrysops elgneri barnardi*: (1) early instar larva (not first), head at top; (2) final instar larva, head at top; (3) pupa. Scale bars (1) = 0.5 mm, (2, 3) = 2 mm.



Figs 4-5. *Hypochrysops elgneri barnardi*: (4) adult female; (5) larval feeding marks on *Nauclea orientalis* at the Claudie River.



*Pupa* (Fig. 3). Pale brown lightly spotted with dark brown; spiracles pale brown. Attached by anal hooks and central girdle.

### Life history

Larval food plants recorded at the Claudie River were *Nauclea orientalis* (L.) L. (Rubiaceae), *Planchonia careya* (F. Muell.) R. Knuth (Lecythidaceae) and two mistletoes: *Notothixos* sp. (Viscaceae) and *Dendrophthoe glabrescens* (Blakely) Barlow (Loranthaceae).

We first found larvae of *H. elgneri* in July 1995, feeding on foliage of a large tree of *N. orientalis* (Leichhardt tree) growing beside Gordons Creek, a tributary of the Claudie River. Their presence was indicated by small feeding scars about 2 mm x 10 mm, presumably made by the early instars, beside the midrib and main veins, and by larger holes in the leaves (Fig. 5). Five large larvae and pupae were found together in a hollow branch. They were attended by small honey coloured ants with a dark grey-green abdomen, identified as *Philidris cordatus stewartii* (Forel) (formerly placed in *Iridomyrmex*; Shattuck 1992). A hatched egg was found on the outside of the branch. The early instar larva described above was found on the leaves with tiny elongate skeletonised patches. Four medium-sized larvae were also found on a nearby Leichhardt tree, including one larva sheltering beneath fine epiphytic roots. In captivity, the larvae ate large holes through the *N. orientalis* leaves. They sheltered within hollow branch stubs during the day, and attached these stubs with silk to the leaf provided as food. The stub was re-attached each time the leaf was replaced. Larvae also excavated hollows in dry wood of *N. orientalis* which they used as shelter and pupation sites.

Other larvae were located in December 1995, approximately 1 km east of the West Claudie River, feeding on mistletoes growing on a large *Planchonia careya* (cocky apple) tree. This tree also bore several epiphytic ant plants (*Myrmecodia* sp., Rubiaceae) and numerous ants attended the larvae. Two species of mistletoe were attached to one branch and it was from within this clump that larvae of *H. elgneri* were found. One species, the golden mistletoe (*Notothixos* sp.) appeared to be favoured by the larvae but there were also feeding marks on the other species (*Dendrophthoe glabrescens*). A hatched egg was found on a stem of the golden mistletoe. The larvae from this site were reared mainly on golden mistletoe but one larva was reared successfully at Townsville on local *D. glabrescens*. At this site, a female *H. elgneri* was also noted flying around the canopy and apparently engaging in oviposition behaviour on the cocky apple foliage remote from the mistletoe. Additional larvae were subsequently found after a search on a roadside *P. careya* tree without mistletoe or ant plants, about 1 km south-west of Lamond Hill. The tree had epiphytic *Dischidia major* (Vahl) Merr. (Asclepiadaceae) plants growing upon it and these provided shelter for the attendant ants. After return to Townsville these larvae were successfully reared on *P. careya*.

The larval duration for individuals reared at Townsville in summer was about 6 weeks, and the pupal duration about 2 weeks.

Adults have also been collected at Iron Range settled on *Melaleuca* trees (Sands 1986). Sands speculated that large larvae of an unidentified *Hypochrysops* sp. collected on a *Melaleuca* sp. in Papua New Guinea may have been this species.

*H. elgneri* has been taken uncommonly but is probably much more abundant than its representation in collections suggests. The extent of its diverse habitats in protected areas and the life history strategy described in this paper, combining an association with a widespread ant species and polyphagy, suggests that the species is under no threat.

### Acknowledgments

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### References

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